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EXAMINER

SHARON, AYAL I

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 08/28/2003

21

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/286,133

Applicant(s)

SABADELL ET AL.

Examin r

Ayal I Sharon

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-- The MAILING DATE of this communicati n appears n the c ver sheet with the c rresp ndence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 15-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Introduction***

1. Claims 1-17 of U.S. Application 09/317,765 filed on 04/01/1999 (provisional application priority date 05/14/1998) are presented for examination. This Final Action is in response to Applicants' Request for Reconsideration (paper #20), received 6/13/2003. No claims were added, cancelled, or amended in paper #20.

### ***Claim Interpretations***

2. Examiner interprets a "keys" as, for example, being "certain property values in the object entry ... for determining where in the hierarchy tree structure to store the geometry of the object." (specification, p.19, lines 22-26)
3. Examiner interprets "filter objects" as, for example, being used "to determine where the geometry of an object is to be inserted into the tree structure." (specification, p.16, line 25 to p.17, line 3)
4. Examiner interprets "modified stack" as, for example, being "... used to record and maintain some of the modifications that are made to objects through the use of a visual rendering application." (specification, p.23, lines 14-15)
5. Examiner interprets an "object" as, for example, being a CAD or visual rendering software representation of a real-world physical object. "For example, the object properties associated with a visual rendering application typically allow objects to be viewed in a target scene as having a particular texture or material, or to

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visualize how certain lighting would look when applied to a particular object."

(specification, p.4, lines 10-18).

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The prior art cited is as follows:

8. U.S. Patent 4,864,497. (Henceforth referred to as "**Lowry**").

9. **Claims 1-2, 4-10, and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Lowry.**

10. In regards to Claim 1, Lowry expressly teaches the following limitations:

1. A method for translating objects between applications that use different formats, the method comprising:

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

generating a source object in a source application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

translating the source object to a target object in a target application, wherein the target application has a format that is not supported by the source application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

performing a first modification to the target object, wherein said first modification is not supported by said source application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

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performing a second modification to said source object in said source application; and  
(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

revising said target object in said target application to reflect said second modification to said source object without removing said first modification to said target object.

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

11. As per Claim 2, Lowry teaches the limitations of Claim 1, as discussed above. In addition, Lowry teaches the limitations of Claim 2:

2. The method of Claim 1, wherein the step of performing the first modification to the target object includes the step of performing a type of modification that cannot be performed using said source application.  
(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

12. As per Claim 4, Lowry teaches the limitations of Claim 1, as discussed above. In addition, Lowry teaches the limitations of Claim 4:

4. The method of Claim 1, wherein:  
the source object is associated with a source geometry and one or more source properties; and  
(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

the step of translating the source object to the target object includes the steps of translating the source geometry to a target geometry; and

(Lowry: especially Fig.5A and 5B, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

translating the one or more source properties to one or more target properties.

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

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13. As per Claim 5, Lowry teaches the limitations of Claim 1, as discussed above. In addition, Lowry teaches the limitations of Claim 5:

5. The method of Claim 1, wherein the step of translating the source object to the target object includes the step of:

building a mapping based on a translation between the source object and the target object.  
(Lowry: especially Fig.2-Fig.5A; col.5, line 35 to col.6, line 45; col.9 line 59 to col.10, line 61)

14. As per Claim 6, Lowry teaches the limitations of Claim 5, as discussed above. In addition, Lowry teaches the limitations of Claim 6:

6. The method of Claim 5, wherein the step of building the mapping includes the step of:  
constructing a hierarchical tree structure, wherein the hierarchical tree structure is based on one or more properties associated with the source object.

(Lowry: especially col.1, line 15 to col.2, line 56; col.5, line 32 to col.6, line 46; col.9 line 59 to col.10, line 61)

15. As per Claim 7, Lowry and further in view of Bannon teaches the limitations of Claim 6, as discussed above. In addition, Lowry teaches the limitations of Claim 7:

7. The method of Claim 6, wherein the source object is associated with a source geometry and one or more source properties; and

translating the source geometry to a target geometry; and  
(Lowry: especially col.1, line 15 to col.2, line 56; col.5, line 32 to col.6, line 46; col.9 line 59 to col.10, line 61)

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16. As per Claim 8, Lowry teaches the limitations of Claim 7, as discussed above. In

addition, Lowry teaches the limitations of Claim 8:

8. The method of Claim 7, wherein the step of generating the set of tree objects includes the steps of  
translating the one or more source properties to one or more target properties;  
(Lowry: especially col.1, line 15 to col.2, line 56; col.5, line 32 to col.6, line 46)

17. In regards to Claim 9, Lowry expressly teaches the limitations of Claim 9:

9. A method for translating objects between applications that use different formats, the method comprising:

generating a first object in a first application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

translating the first object to a second object in a second application, wherein the second object has a format that is not supported by the first application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

performing a first modification to the second object in the second application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; Col. 1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

performing a second modification to said first object in said first application; and

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

performing a third modification to the second object based on data generated in response to said second modification to said first object, wherein said third modification causes said second object to reflect the second modification that was made to the first object without undoing the first modification to the second object.

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

18. As per Claim 10, Lowry teaches the limitations of Claim 9, as discussed above.

In addition, Lowry teaches the limitations of Claim 10:

10. The method of Claim 9, wherein the step of performing the first modification to the second object includes the step of performing a type of modification that cannot be

performed using said first application.

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55)

19. In regards to Claim 12, Lowry teaches the limitations of Claim 12:

12. A computer-readable medium carrying one or more sequences of instructions for translating objects between applications that use different formats, wherein execution of the one or more sequences of instructions by one or more processors causes the one or more processors to perform the steps of:

(Lowry: especially Fig.1)

generating a source object in a source application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

translating the source object to a target object in a target application, wherein the target application has a format that is not supported by the source application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

performing a first modification to the target object, wherein said first modification is not supported by said source application;

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

performing a second modification to said source object in said source application; and

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

revising said target object in said target application to reflect said second modification to said source object without removing said first modification to said target object.

(Lowry: especially Fig.5A and 5B, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

20. In regards to Claim 13, Lowry teaches the limitations of Claim 13:

13. A system for translating objects between applications that use different formats, the system comprising:  
a memory;

(Lowry: especially Fig.1)

one or more processors coupled to the memory; and

(Lowry: especially Fig.1)

a set of computer instructions contained in the memory, the set of computer instruction including computer instructions which when executed by the one



or more processors, cause the one or more processors to perform the steps of:  
(Lowry: especially Fig.1)

generating a source object in a source application;  
(Lowry: especially Fig.5A and 5B, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

translating the source object to a target object in a target application, wherein the target application has a format that is not supported by the source application;  
(Lowry: especially Fig.5A and 5B, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

performing a first modification to the target object, wherein said first modification is not supported by said source application;  
(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; Col. 1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

performing a second modification to said source object in said source application; and  
(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

revising said target object in said target application to reflect said second modification to said source object without removing said first modification to said target object.  
(Lowry: especially Fig.5A and 5B, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

## 21. In regards to Claim 14, Lowry teaches the limitations of Claim 14:

14. A method for translating objects between applications that use different formats, the method comprising:  
(Lowry: especially Fig.5A and 5B, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

generating a hierarchical structure for organizing one or more properties of a source object being translated to a target object, (Lowry: especially Fig.5A and 5B, Items 540, 570, 580, 590; Col. 1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

wherein each level of the hierarchical structure is associated with a property of an object and wherein the source object is associated with a source application and the target object is associated with a target application;

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(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

using one or more filter objects to determine a location, within the hierarchical structure, to map the one or more properties of the source object; and

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

storing the hierarchical structure in a target file, wherein the target file is used by the second application to construct the target object.

(Lowry: especially Fig.5A and 513, Items 540, 570, 580, 590; col.1, lines 15-56; col.2, lines 15-55; col.11, lines 40-65; col.31, lines 29-42)

### ***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. The prior art cited is as follows:

24. U.S. Patent 4,864,497. (Henceforth referred to as "**Lowry**").

25. Barequet et al. "A Data Front-End for Layered Manufacturing", Proceedings of 13th Annual Symposium on Computational Geometry. 1997. pp.231-239.

(Henceforth referred to as "**Barequet**")

26. **Claims 3, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowry in view of Barequet.**

27. As per Claim 3, Lowry teaches the limitations of Claim 1, as discussed above. In addition, Lowry teaches the following limitations of Claim 3:

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3. The method of Claim 1, wherein:
  - the source application is a Computer Aided Design (CAD) application;
  - the step of generating the source object in the source application includes the step of generating a CAD object in said CAD application;
  - the step of performing a second modification to said source object includes the step of performing a modification to the CAD object; and

However, while Lowry teaches the translation and shared use of files by CAD and CAM applications, Lowry does not expressly teach the translation and shared use of files by CAD and "rendering applications", as claimed in the following limitations:

- the target application is a rendering application; and wherein
- the step of translating the source object to the target object includes the step of translating the CAD object into a rendering object;
- the step of performing the first modification to the target object includes the step of performing a modification to the rendering object;
- the step of revising said target object includes the step of revising the rendering object to reflect the second modification that was made to the CAD object without undoing the first modification to the rendering object.

Barequet, on the other hand, teaches the use of a rendering application to view and edit CAD files. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Lowry with the teachings of Barequet in order to enable the shared use and translation of files between CAD and "rendering applications", because the rendering application taught in Barequet is used to prepare files for CAM applications, and would be functionally equivalent to a CAM application in Lowry's invention. Barequet teaches: "The DFE (Data Front-End) system described in this paper is a

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geometric software package which supports all stages of preparing CAD data files for production." (Barequet, p.232, col.2, para.3).

28. As per Claim 11, Lowry teaches the limitations of Claim 9, as discussed above.

In addition, Lowry teaches the following limitations of Claim 11:

11. The method of Claim 9, wherein:
  - the first application is a Computer Aided Design (CAD) application;
  - the step of generating the first object in the first application includes the step of generating a CAD object in said CAD application;
  - the step of performing a second modification to said first object includes the step of performing a modification to the CAD object; and

However, while Lowry teaches the translation and shared use of files by CAD and CAM applications, Lowry does not expressly teach the translation and shared use of files by CAD and "rendering applications", as claimed in the following limitations:

- the second application is a rendering application; and wherein
- the step of translating the first object to the second object includes the step of translating the CAD object into a rendering object;
- the step of performing the first modification to the second object includes the step of performing a modification to the rendering object;
- the step of performing the third modification to the second object includes the step of performing a third modification to the rendering object to reflect the second modification that was made to the CAD object without undoing the first modification to the rendering object.

Barequet, on the other hand, teaches the use of a rendering application to view and edit CAD files. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Lowry with the teachings of Barequet in order to enable the shared use and translation of files

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between CAD and "rendering applications", because the rendering application taught in Barequet is used to prepare files for CAM applications, and would be functionally equivalent to a CAM application in Lowry's invention. Barequet teaches: "The DFE (Data Front-End) system described in this paper is a geometric software package which supports all stages of preparing CAD data files for production." (Barequet, p.232, col.2, para.3).

### ***Response to Arguments***

29. Examiner thanks the Applicants for the very detailed and extensive response (paper #20). Examiner hopes that this Office Action will help clarify some of the issues raised in paper #20.

### **Re: Claim Interpretations**

30. In the terms in the Claim Interpretations section of both this Office Action and the previous Office Action (paper #18), Examiner attempted to provide support in the specification for the interpretation of the terms that was used in the examination.

31. In response to Applicants' arguments (paper #20, pp.2-3) that the terms should be given the broadest reasonable interpretation, Examiner has added the term "for example" to the Claim Interpretations.

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Re: 102 Rejections

32. In the "Preliminary Points" section of paper #20 (pp.3-4), Applicants make the following points:

- The source object is generated by the source application, and the target object is generated by translating the source object. Therefore, the source application indirectly dictates the construct or constitution of the target object.
- The limitation recited in Claim 1 "wherein said first modification is not supported by said source application" should not be ignored, for it contributes to the context of the invention embodied in Claim 1.

33. Examiner agrees with the points made by the Applicants in the "Preliminary Points" section. Examiner finds these limitations to be in the claim language.

34. In the "Hypothetical" section of paper #20 (p.5), Applicants argue that "Lowry does not disclose or suggest that one of the applications 530 and 560 are capable of making a modification that is not supported by the other application." Examiner refers the Applicants to the "Background of the Invention" and "Summary of the Invention" sections of Lowry (col.1 - col.2), which teaches (emphasis added):

(3) BACKGROUND OF THE INVENTION

(4) This invention relates generally to the field of databases, and more specifically to the uses of common databases by several application programs.

(5) Often many different application programs must be adapted to share or exchange information with other programs in a computer system. One notable example is a set of interactive computer programs which provide assistance in the design and manufacture of products. Such interactive programs typically include computer-aided design (CAD) programs and computer-aided manufacturing (CAM) programs that are used in the development of products. Other examples of application programs often requiring information exchange are document

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retrieval programs and project management programs.

**(6) In such systems, output data from one application program is often input data for one or more other application programs. For example, the output data of a CAD program used to develop the design of a circuit board may be used as input data for a CAM program which facilitates manufacture of the designed circuit board.**

**(15) Accordingly, it is an object of the present invention to provide a method for integrating several application programs using a common data structure in a manner which reduces the need and complexity of additional conversion programs or redesign of application programs.**

**(21) SUMMARY OF THE INVENTION**

**(22) To achieve the foregoing objects, and in accordance with the purpose of the invention as embodied and broadly described herein, a data structure for access by a plurality of application programs is created from single primitive data elements or attribute data objects. According to the present invention, a the data structure in a memory coupled to the data processor. The data structure is created using data originating in the application programs and including node data and node data descriptors. Specifically, the method of creating the data structure comprises the steps, executed by said data processor, of creating a different one of the attribute data objects for each of the node data and organizing the attribute data objects hierarchically according to a being-held relationship by choosing from the attribute data objects for each of the attribute data objects, a holder data object such that a hierarchical being-held relationship exists between each attribute data object and a single holder data object.**

Examiner agrees that Lowry did not expressly disclose that "applications 530 and 560 are capable of making a modification that is not supported by the other application".

However, Examiner finds that Lowry's teaching (in the "Background of the Invention" and "Summary of the Invention"), that the output of a CAD program is used as the input for a CAM program, is a clear suggestion of this feature.

It is inherent that changes made in a CAM program are not supported in a CAD program - if they were, then the CAM program would be redundant.

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The Barequet reference, used in the 35 USC §103, and which teaches a CAM program which converts and edits a CAD file, buttresses this interpretation.

35. In the "Discussion of Claim 1" section of paper #20 (pp.5-6), Applicant's argue that:

... the source and target objects recited in claim 1 are not the same object, because **the target object is translated from the source object**. Thus, while Lowry discloses that the presence of a lock may prohibit one application from writing to a shared resource, while another application has a write lock to that resource, such a lock would not prevent one application from modifying the claimed source object while another application modified the target object. Thus, the source and target objects are, generally, corresponding resources. In different applications, rather than a shared resource."

In giving the broadest reasonable interpretation to the claim language, there is no limitation in the claim that excludes the use of an intermediate, shared resource (like the database taught by Lowry) from facilitating the updating of the source object and the target object. Applicants are arguing a feature that is not in the claim.

Moreover, in giving the broadest reasonable interpretation to the claim language, there is no limitation in the claim that states that the source application and the target application can only modify their respect objects simultaneously. It is reasonable to interpret the steps of the method as being implemented sequentially. Again, Applicants are arguing a feature that is not in the claim.

36. Applicants argue (paper #20, p.6) that "During the telephone interview, no specific answer was given to what, within Lowry, was considered to be the 'source object' and the 'target object' of the claims".



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Examiner refers the Applicants to the sections of Lowry that discuss the data retrieved for the two different Application programs shown in Fig.5A, Items 530 and 560:

(34) The data structure of the present invention also includes means for retrieving from the common data structure all of those attribute data objects which have a being-held relationship with a specified attribute data object. Again, retrieval program 580 in the preferred embodiment shown in FIG. 5A performs this type of retrieval also. In operation, application program 530 specifies an attribute data object and asks for all those other attribute data objects which are held by the specified attribute data object. Retrieval program 580 then translates that request into an appropriate format, and searches through the slave database 520 until the specified attribute data object is located. **Once the specified attribute data object is located, retrieval program 580 obtains copies of all of the attribute data objects which are held by that specified data object. Retrieval program 580 then converts those held attribute data objects into the format applicable for application program 530 and transmits those converted attribute data objects to application program 530.**

(Lowry: col.9, line 53 to col.10, line 4)

and

**Preferably, retrieval program 590 performs the same functions as retrieval program 580. The only functional difference between retrieval programs 580 and 590 would reflect the manner in which information is transmitted to application programs 530 and 560. For example, retrieval program 590 could perform a series of retrievals as described above, converting the data so obtained into appropriate format for application program 560, and write this data into a file 595. Application program 560 would then read the retrieved data from file 595.**

(Lowry: col.10, lines 16-26):

The specification of the current application (p.3, lines 14-15) defines an "object" as follows:

"In generating a construction document, the CAD application uses a particular set of 'design' attributes to describe the objects that are to be contained in the layout."

Therefore, Examiner finds that Lowry's "attribute data object" retrieved by retrieval program 580 are equivalent to Applicants' "objects" in the "construction document", and these attributes constitute "a target object in a target application".

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The question, then, as posed by the Applicants, is which Application program (530 or 560) is the target, and which is the source. In fact, either one of Application Programs 560 and 530 in Fig.5A can be the target (or source) application, with the difference being that retrieval program 590 would write to an intermediate file, while retrieval program 580 would stream the data directly to the Application program.

37. Applicants argue (paper #20, p.6) that "No possible selection of 'Source Object' will cause claim 1 to be satisfied". Applicants provide 3 possible scenarios:

- a. a field of a record
- b. an entire record that including a field that is modifiable and supported only by the target application, and
- c. an entire record except for a field that is modifiable and supported only by the target application.

38. In regards to the first scenario (scenario (a) above), Applicants argue (paper #20, p.6):

Assume that the target application obtains a lock on that field in the target object, modifies that field by adding Chinese characters, and converts and saves the field back to the Lowry database.

At this point, if the source application modifies that field of the original source record (perhaps from its local store) and converts and saves it back to the Lowry database, (a) the Chinese characters will be overwritten or (b) another separate record, or snapshot, will be created separate from the record or snapshot containing the field with the Chinese characters. Thus, this scenario could not possibly satisfy the limitations:

(1) revising said target object in said target application (2) to reflect said second modification to said source object (3) without removing said first modification to said target object.

39. Applicants' argument regarding the first scenario (scenario (a) above) is based on the assumptions that:

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- a. the lock on the field in the target object is released before the source application modifies that object.
- b. the source application attempts to modify the same field as the target object.

The assumption that the lock is released is a critical one, because the entire purpose of the lock to prevent the overwriting that the Applicants describe. Lowry expressly teaches:

(203) Data Base Controller (DBC) 2920 controls the storage management functions. DBC 2920 corresponds to the control file 555 in FIG. 5B. In general, DBC file 2920 controls the modification of data structure 140' as well as the access to that data structure. **DBC 2920 controls the modification of data structure 140' by managing and keeping track of changes to the data structure and by ensuring, through the use of ALTER lock (See FIG. 513) that only one user can make modifications to a version of a macropage of the data structure. DBC file 2920 controls access to the data structure by keeping track of the location of all active macropages and by preventing collisions with certain users through the use of DBC lock (See FIG. 5B).** (Lowry: col.31, lines 29-42)

Releasing the lock, by definition, removes the overwrite protection. If the target lock is not released, then the source application is not able to overwrite the changes made by the target application. This scenario - where the lock is maintained - satisfies the claimed limitations.

40. In regards to the first scenario (scenario (a) above), Applicants also argue (paper #20, p.6):

Lowry does not disclose a target object being revised to contain both modifications to corresponding source and target objects. Even if the source application retrieved the target object I field from the Lowry database to perform its modifications on that object I field, the Chinese characters would still be lost upon conversion to the source application because, by definition, the source application does not support Chinese characters. Thus, the target object will never reflect both the Chinese characters, and the subsequent change made by the source application to the source object.

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Again, Applicants' assume that the lock (in this case, on the field containing "Chinese characters") has been released, and that the source application can overwrite the locked fields. However, if the lock has not been released, then even if the source application loses these "Chinese characters" in the conversion process, it will not be able to overwrite these fields when loading its new changes into the database (Item 510), because these fields are locked.

41. Therefore, Examiner finds that contrary to Applicants' argument, the first selection (as defined by the Applicants) will cause claim 1 to be satisfied. Examiner is therefore maintaining the rejection of Claim 1. Examiner is also maintaining the rejections of similar Claims 9, 12 and 13, and of dependent claims 2-8 and 10-11.

42. In regards to Claim 14, Applicants argue that Lowry does not teach:

- a. Generation of a hierarchical structure for organizing object properties, where each level of the hierarchy is associated with a respective object property
- b. Using filter objects to map source properties into the hierarchical structure
- c. Storing the hierarchical structure in a target file for construction of a target object in a target application

43. Examiner refers the Applicants to the "Summary of the Invention" section of Lowry (col.2 - col.3), which teaches (emphasis added):

(21) SUMMARY OF THE INVENTION

(22) To achieve the foregoing objects, and in accordance with the purpose of the invention as embodied and broadly described herein, a data structure for access by a plurality of application programs is created from single primitive

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data elements or attribute data objects. According to the present invention, a the data structure in a memory coupled to the data processor. The data structure is created using data originating in the application programs and including node data and node data descriptors. Specifically, the method of creating the data structure comprises the steps, executed by said data processor, of creating a different one of the attribute data objects for each of the node data and **organizing the attribute data objects hierarchically according to a being-held relationship by choosing from the attribute data objects for each of the attribute data objects, a holder data object such that a hierarchical being-held relationship exists between each attribute data object and a single holder data object.**

Examiner finds that this teaches the first limitation. Examiner also refers the

Applicants to Lowry (col.10, line 61 to col.11, line 2):

(40) Preferably, converter program 570 performs the same functions as converter program 540. The only difference between converter programs 540 and 570 shown in FIG. 5A is the manner in which information is transmitted from application program 560. Application program 560 first writes data into a file 565. **Converter program 570, after receiving a signal from update synchronizer 550, reads file 565 and creates attribute data objects in common data structure 140 of master database 510 in accordance with data in file 565.**

Examiner finds that this teaches the second limitation. Examiner also refers the

Applicants to Lowry (col.10, lines 16-26):

(36) Preferably, retrieval program 590 performs the same functions as retrieval program 580. The only functional difference between retrieval programs 580 and 590 would reflect the manner in which information is transmitted to application programs 530 and 560. For example, retrieval program 590 could perform a series of retrievals as described above, converting the data so obtained into appropriate format for application program 560, and write this data into a file 595. Application program 560 would then read the retrieved data from file 595.

Since either one of Application Programs 560 and 530 in Fig.5A can be the target application, if the target application is Application 560, then the limitation is satisfied. Therefore, Examiner finds that Lowry teaches the third limitation as well, and is maintaining the rejection of Claim 14.

44. Examiner has withdrawn the rejections to claims 15-17 for reasons detailed in the "Allowable Subject Matter" section in this Office Action.

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*Re: 103 Rejections*

45. Applicants argue that Claims 3 and 11 are allowable because they depend from Claims 1 and 9, and the Lowry rejections of Claims 1 and 9 should be withdrawn, as argued above. Examiner respectfully disagrees, and has maintained the Lowry rejections of Claims 1 and 9, and therefore is maintaining the rejections of Claims 3 and 11.

***Allowable Subject Matter***

46. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

47. Claim 15 recites the use of filter objects in association with collection objects to map properties into the hierarchy based on comparing a property value with a collection value of a respective collection object. Lowry teaches the use of Converter Programs and Retrieval Programs map properties of attribute data objects, as taught in the following paragraphs:

Preferably, converter program 570 performs the same functions as converter program 540. The only difference between converter programs 540 and 570 shown in FIG. 5A is the manner in which information is transmitted from application program 560. Application program 560 first writes data into a file 565. **Converter program 570, after receiving a signal from update synchronizer 550, reads file 565 and creates attribute data objects in common data structure 140 of master database 510 in accordance with data in file 565.** (Lowry: col.10, line 61 to col.11, line 2)

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The data structure of the present invention also includes means for retrieving from the common data structure all of those attribute data objects which have a being-held relationship with a specified attribute data object.

Again, retrieval program 580 in the preferred embodiment shown in FIG. 5A performs this type of retrieval also. In operation, application program 530 specifies an attribute data object and asks for all those other attribute data objects which are held by the specified attribute data object. Retrieval program 580 then translates that request into an appropriate format, and searches through the slave database 520 until the specified attribute data object is located. **Once the specified attribute data object is located, retrieval program 580 obtains copies of all of the attribute data objects which are held by that specified data object. Retrieval program 580 then converts those held attribute data objects into the format applicable for application program 530 and transmits those converted attribute data objects to application program 530.**

(Lowry: col.9, line 53 to col.10, line 4)

Lowry also teaches that the attribute data objects are mapped hierarchically.

Specifically, the method of creating the data structure comprises the steps, executed by said data processor, of creating a different one of the attribute data objects for each of the node data and **organizing the attribute data objects hierarchically according to a being-held relationship by choosing from the attribute data objects for each of the attribute data objects, a holder data object such that a hierarchical being-held relationship exists between each attribute data object and a single holder data object.** (Lowry: col.2, line 60 to col.3, line 10)

However, Lowry does not expressly teach that filter objects are used in association with collection objects to map the properties into the hierarchy based on comparing a property value with a collection value of a respective collection object.

Therefore, this limitation, in combination with the other limitations of Claims 14 and 15, is allowable.

48. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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47. Claim 16 recites the use of a modifier stack for storing modifications of the target object and linking the modifier stack with a collection object and applying a modification of the modifier stack to the target file via the linked collection object, thereby constructing the target object.

Lowry teaches that the attribute data objects are mapped hierarchically.

Specifically, the method of creating the data structure comprises the steps, executed by said data processor, of creating a different one of the attribute data objects for each of the node data and **organizing the attribute data objects hierarchically according to a being-held relationship by choosing from the attribute data objects for each of the attribute data objects, a holder data object such that a hierarchical being-held relationship exists between each attribute data object and a single holder data object.** (Lowry: col.2, line 60 to col.3, line 10)

However, Lowry does not expressly the use of a modifier stack for storing modifications of the target object and linking the modifier stack with a collection object and applying a modification of the modifier stack to the target file via the linked collection object, thereby constructing the target object.

Therefore, this limitation, in combination with the other limitations of Claims 14 and 16, is allowable.

48. Claim 17 depends from Claim 16 therefore would be allowable for the same reasons described above.



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### ***Conclusion***

**48. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (703) 306-0297. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on (703) 305-9704. Any response to this office action should be mailed to:

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Director of Patents and Trademarks  
Washington, DC 20231

Hand-delivered responses should be brought to the following office:

4<sup>th</sup> floor receptionist's office  
Crystal Park 2  
2121 Crystal Drive  
Arlington, VA

The fax phone numbers for the organization where this application or proceeding  
is assigned are:

Official communications:	(703) 746-7239
Non-Official / Draft communications	(703) 746-7240
After Final communications	(703) 746-7238

Any inquiry of a general nature or relating to the status of this application or  
proceeding should be directed to the receptionist, whose telephone number is:  
(703) 305-3900.

Ayal I. Sharon

Art Unit 2123

August 19, 2003

*CEM*  
*W. Kaur*  
*Aug 21 2003*  
*Debra Power*  
*8/25/03*